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SPP2301A
P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP2301A is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

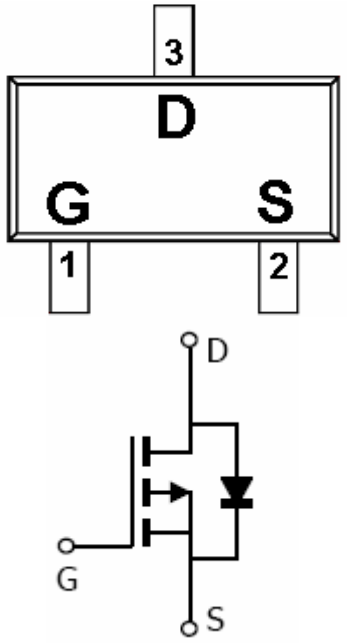
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

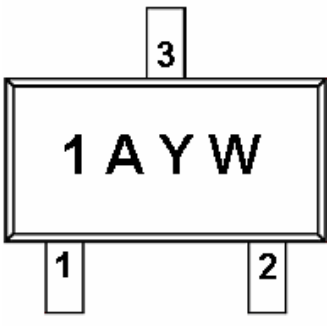
FEATURES

- -20V/-2.8A,$R_{DS(ON)}$=150mΩ@V_{GS}=-4.5V
- -20V/-2.0A,$R_{DS(ON)}$=275mΩ@V_{GS}=-2.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

PIN CONFIGURATION(SOT-23-3L)



PART MARKING



Y : Year Code
W : Week Code

SPP2301A
P-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPP2301AS23RG	SOT-23-3L	1AYW

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)
※ SPP2301AS23RG : Tape Reel ; Pb – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate –Source Voltage		V_{GSS}	±12	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	-3.0	A
	T_A=70℃		-2.0	
Pulsed Drain Current		I_{DM}	-10	A
Continuous Source Current(Diode Conduction)		I_S	-1.6	A
Power Dissipation	T_A=25℃	P_D	1.25	W
	T_A=70℃		0.8	
Operating Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	120	℃/W

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P-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS

(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250uA	-0.45		-1.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V			-1	uA
		V_{DS}=-20V,V_{GS}=0V T_J=55℃			-10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦-5V,V_{GS}=-4.5V	-6			A
		V_{DS}≦-5V,V_{GS}=-2.5V	-3			
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-2.8A		0.130	0.150	Ω
		V_{GS}=-2.5V,I_D=-1.6A		0.250	0.275	
Forward Transconductance	gfs	V_{DS}=-5V,I_D=-2.8A		6.5		S
Diode Forward Voltage	V_{SD}	I_S=-1.6A,V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-6V,V_{GS}=-4.5V I_D≡-2.8A		4.8	8	nC
Gate-Source Charge	Q_{gs}			0.75		
Gate-Drain Charge	Q_{gd}			1.3		
Input Capacitance	C_{iss}	V_{DS}=-6V,V_{GS}=0V f=1MHz		35		pF
Output Capacitance	C_{oss}			150		
Reverse Transfer Capacitance	C_{rss}			60		
Turn-On Time	$t_{d(on)}$	V_{DD}=-6V,R_L=6Ω I_D≡-1.0A,V_{GEN}=-4.5V R_G=6Ω		10	20	ns
	t_r			32	45	
Turn-Off Time	$t_{d(off)}$			38	55	
	t_f			30	50	

SPP2301A
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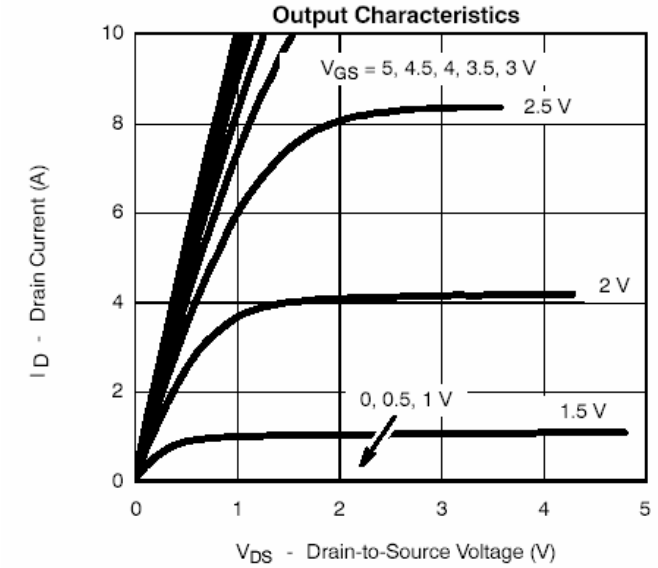
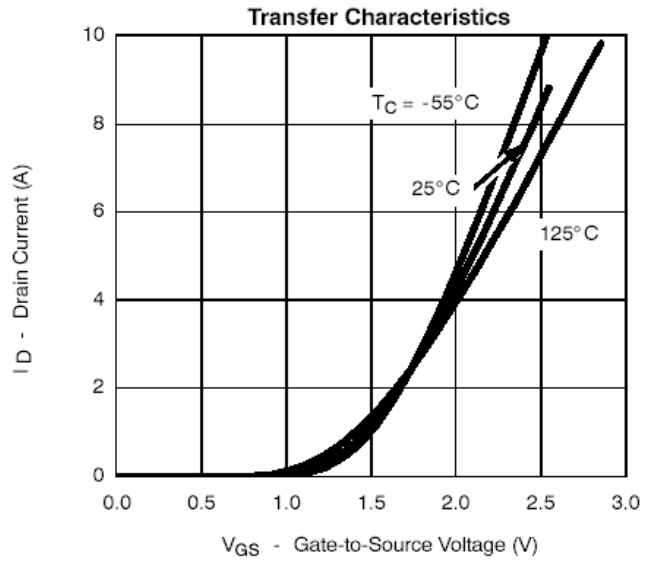
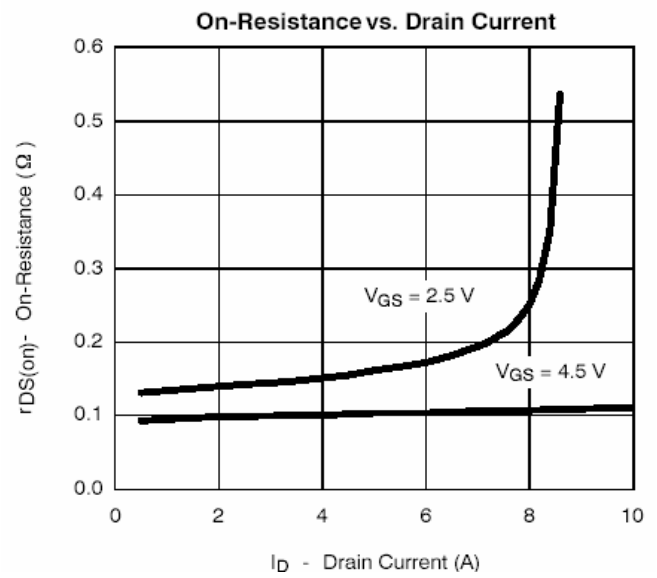
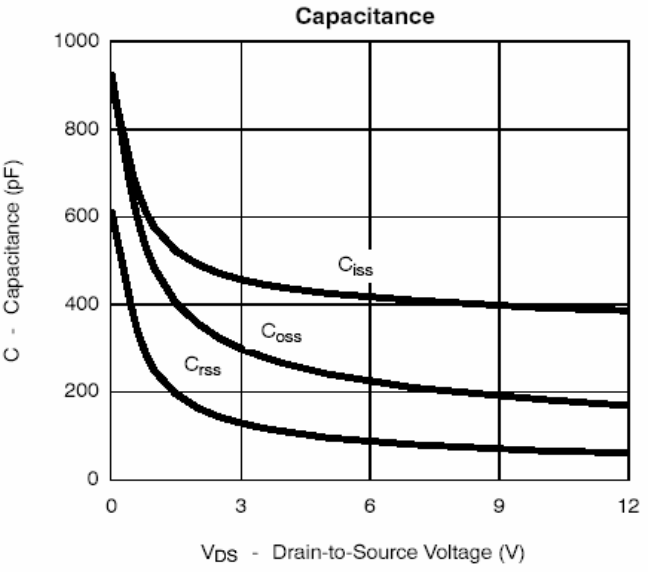
TYPICAL CHARACTERISTICS









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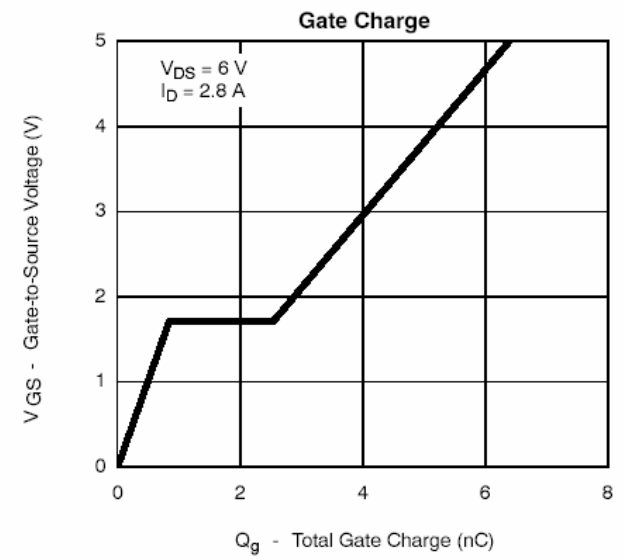

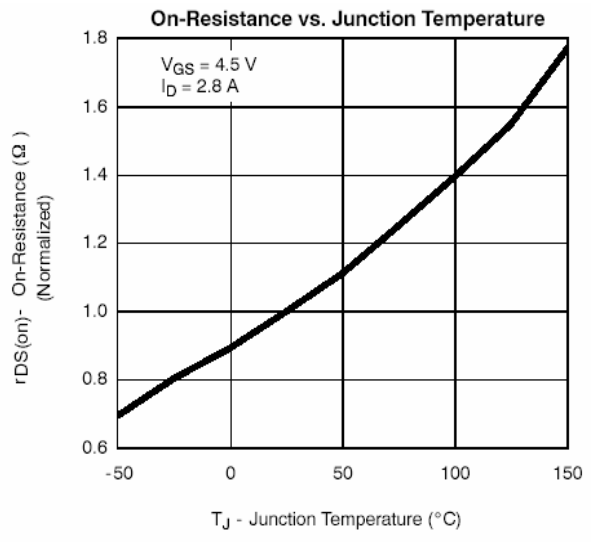

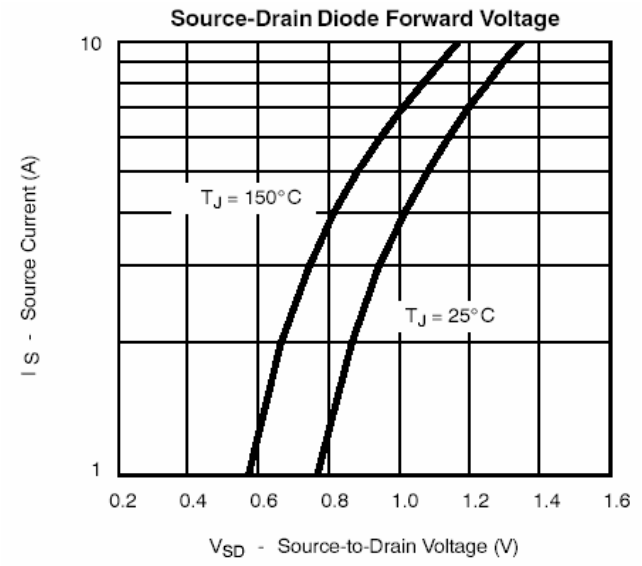

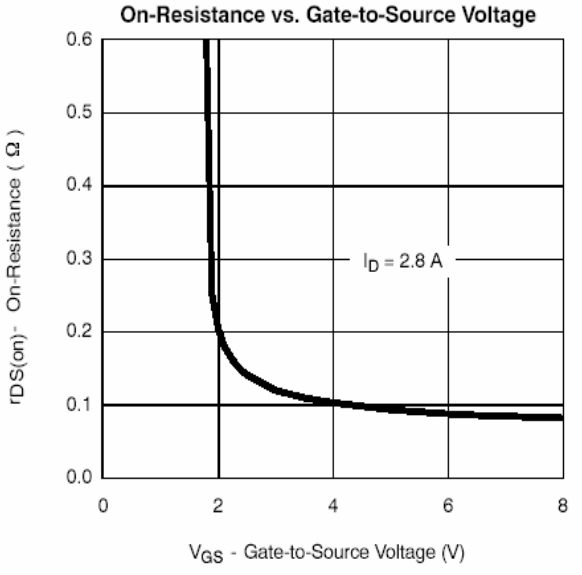

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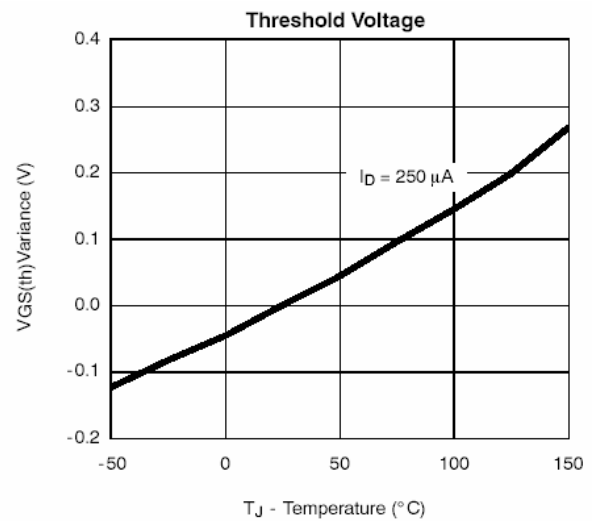
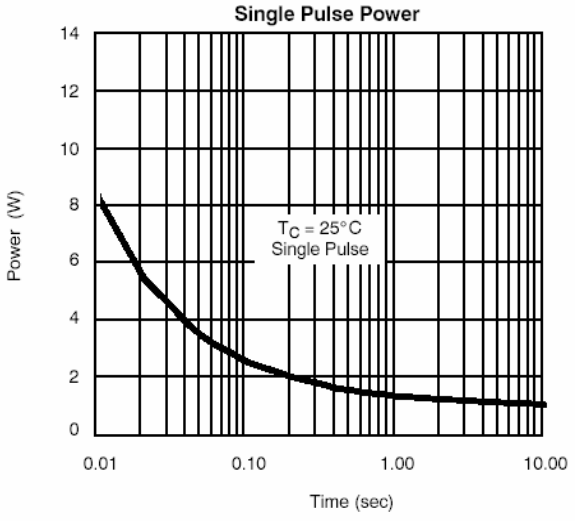
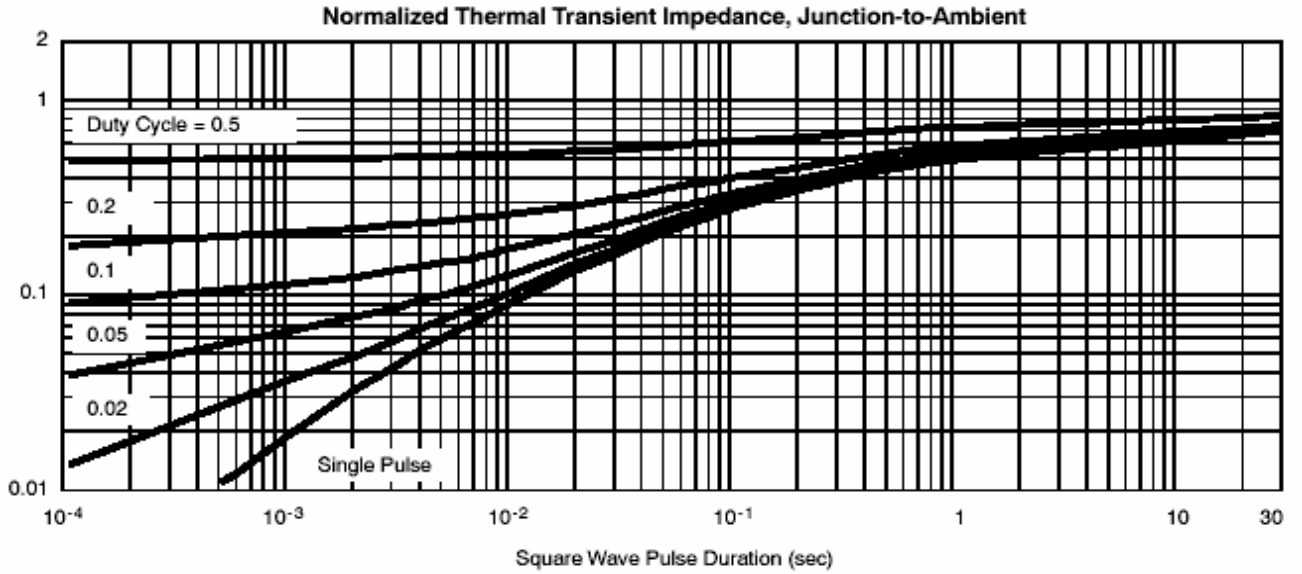
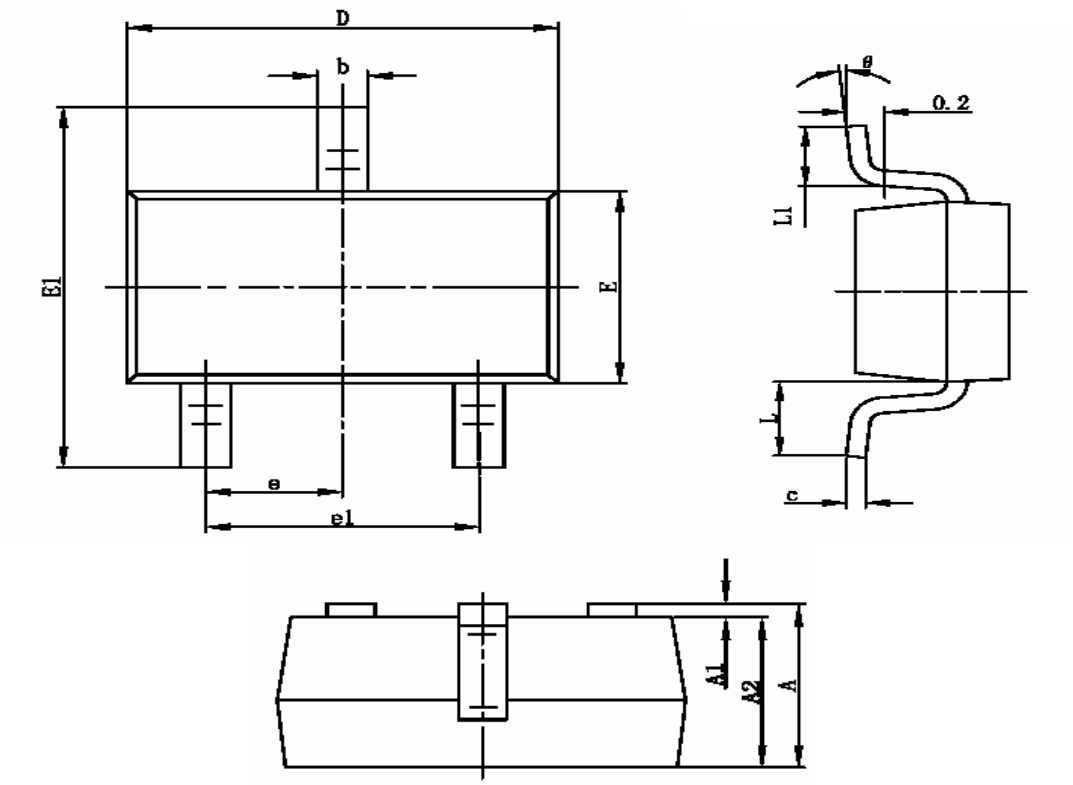






SOT-23-3L PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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